



## SLC-220 SMART CONTROLLER

SLC-220 Smart Leakwise Controller is a digital signal processor that interfaces with Leakwise ID-220 Series Sensors and gives hydrocarbons spill/leak alerts, including layer buildup and thickness. Alerts are done via a wide variety of outputs and communication interfaces for local or remote reporting. The SLC-220's modular design and flexible configuration provide solutions for all specific customer needs. It can be AC or DC line or battery powered and can operate in wired and/or wireless applications. SLC-220 supports up to four Leakwise Sensors per unit.

### SLC-220 FEATURES

- Low-power consumption with wired or wireless connection to customer's main control system.
- Low-cost cellular wireless operation by text messaging to cellphones. Optional communication when using a Smart Leakwise Receiver (SLR-220). Backup communication occurs through a free call-and-hang-up feature.
- Centralized control of multiple sensors using multiple controllers connected by a common RS-485 cable to a central SCADA or to an SLR-220 receiver that collects the data.
- Built-in self-diagnostics of the Leakwise Sensors and the SLC-220 controller.
- Processor firmware updates can be easily downloaded by the user for keeping the product updated.



### SLC-220 OPERATION

The SLC-220 is designed for low-power consumption in many applications. Each monitored sensor is powered on for a short duration for sampling and decision making, and then turned off.

All SLC-220 settings and calibration parameters can be changed locally or remotely through:

- LCD screen (with touch operation) or connection (RS-232) to a PC with the provided SLC-Manager PC program
- Connection to the control room through Modbus (RS-232 or RS-485)
- Cellular phone messaging if a cellular modem is installed

### COMMUNICATION: CELLULAR MODEM AND SLR-220 RECEIVER

When a Cellular modem is installed, the SLC-220 can report to multiple remote locations by sending text messages to six cell phone recipients, and/or to a SLR-220/GSM Receiver. The SLR-220 receives and processes data from multiple remote SLC-220 Controllers and reports to the central control room SCADA via Modbus or dry contacts or 4-20mA output.

The receiver verifies timely reporting from all the remote sensors. The information normally received includes sensor name, status, sensor signal value, and battery voltage (where relevant).

### SLC-220 STANDARD CONFIGURATION

SLC-220 comes in two basic configurations, and optional enhancements are available.

SLC-220/N4/LI/RL-420/COM/BASIC includes:

- RS-232 port for setup by PC using the included SLC-Manager PC program
- RS-485 port for interfacing to control system (such as SCADA) for reports and setup through Modbus protocol
- Support for up to two ID-220 Series Sensors
- One Outputs board with five relays and one 4-20mA output
- NEMA 4X (IP65) enclosure
- Set of status Lights on front panel

SLC-220/N4/LI/RL-420/COM/MULTI includes same as the BASIC version but supports up to four ID-220 Series Sensors.

### SLC-220 OPTIONS

- Additional Outputs boards: Up to a total of two boards for **BASIC** or four for **MULTI**
- 4.3-inch color LCD with back light and touch operation installed on the front panel. The display enables easy and intuitive local viewing, setting, and calibration
- Cellular modem: 3G Quad-Band plus an omnidirectional antenna to enable the use of the Cellular communication option
- Zener Safety Barriers for connecting to sensors installed in hazardous areas
- Enclosure for hazardous area installation of the controller: Exd or NEMA 7

# TECHNICAL SPECIFICATIONS

SLC-220 Controller Specifications and Options	
<b>Sensor Support</b>	Up to four sensors can be monitored by each SLC-220/MULTI controller, two sensors by SLC-220/BASIC. Multiple control units can be linked together via RS-485 interlinks to create a large multi-sensor network - TBA.
<b>Measurement Resolution</b>	0.1% of sensor's output signal
<b>Status Lights</b>	Water, Oil, High Oil, Air, Fail, Power On: Six status lights common to all four sensors; Option: Oil 1, Oil 2, Oil 3, Oil 4 (Oil or High Oil per sensor), Fail (common), Power On.
<b>Display Option</b>	LCD display installed on the front panel: 4.3" color LCD, 480 x 272 resolution, with back light and touch operation. Password protected.
<b>Serial Ports</b>	1 x RS-232 for configuration and calibration (interface with PC/Laptop or portable LCD display) 1 x RS-232 port for using Cellular or PTP Radio Modem 1 x RS-485 half duplex port for communication to SCADA via Modbus protocol 1 x RS-485 half duplex port for network interconnection between SLC-220 Controllers - TBA
<b>Port Settings</b>	All RS-232 / RS-485 ports: Up to 115,200 bps, 8 data bits, no parity, 1 stop bit. Only RS-232 for modem uses flow control.
<b>Outputs Board</b>	Up to two boards can be installed in SLC-220/BASIC; Up to four in SLC-220/MULTI. As a default one Outputs Board is supplied inside each controller. Additional boards are optional. Each Outputs Board includes: <ul style="list-style-type: none"> <li>• Five dry contact relays: A separate SPDT relay (N.O. and N.C. contacts, rated 6A at 250 VAC or 30 VDC) for Water, Oil, High Oil, Air and Fail indication for one sensor. May be used in Fail Safe mode. By a setting, a single board can serve four sensors and the relays will indicate Oil / High Oil for sensor 1, Oil / High Oil for sensor 2, etc., and the Fail relay will be common to all sensors.</li> <li>• One 4-20 mA output: Current source output for indicating measured oil layer thickness and trend. User configurable (by jumpers) to 4-20 mA, 0-20 mA, 0-24 mA or 0-5V output range.</li> </ul>
<b>Processor &amp; Memory</b>	<b>Built in Test</b> Built-in test for sensors and system diagnostics TI low power microcontroller with internal and external memory. Firmware upgrade through serial port. Programmable parameters by the user via LCD or SLC-Manager PC program.
<b>Ambient Temperature</b>	<ul style="list-style-type: none"> <li>• Controller with 9-36VDC input voltage: -40 °C to +85 °C</li> <li>• Controller with 100-240VAC input voltage: -20 °C to +70 °C; Lower range available.</li> <li>• Controller with LCD display: -20 °C to +70 °C</li> <li>• Controller with Cellular / PTP radio modem: -20 °C to +55 °C</li> </ul>
<b>Humidity</b>	5 to 95% non-condensing
<b>Power Supply</b>	110/220VAC or 12/24VDC; Optional solar panel with charger and 12VDC battery.
<b>Power Consumption</b>	Designed for low-power consumption when not using Outputs Boards or LCD. <ul style="list-style-type: none"> <li>• Each sensor consumes 120mW maximum; [four sensors = 0.12W max, since sensors are turned off when not sampled].</li> <li>• The LCD display consumes 0.6W maximum with backlight, which is dimmed when not used.</li> <li>• Each Outputs Board consumes 2.6W maximum [four output boards = 10.4W max].</li> </ul> Total: 11.5W maximum, not including a Cellular / PTP radio modem, which can be turned off when not in use.
<b>Enclosure Options</b>	<ul style="list-style-type: none"> <li>• NEMA 4X (UL for USA and Canada) or IP65, for non-hazardous areas</li> <li>• ATEX and IECEx Flameproof, certified as II(1)GD - Ex db [Ia Ga] IIB+H2 T6 Gb IP66</li> <li>• UL for USA &amp; Canada, Explosionproof NEMA 7 for Class I Groups B, C &amp; D, also NEMA 4</li> <li>• Controller without enclosure (Back Plate) for installation in a user-cabinet</li> </ul>
<b>Dimensions</b>	NEMA 4X / IP65 enclosure: <ul style="list-style-type: none"> <li>• SLC-220/BASIC: 297 x 297 x 191 mm (11.69 x 11.69 x 7.52 in)</li> <li>• SLC-220/MULTI: 398 x 297 x 191 mm (15.67 x 11.69 x 7.52 in)</li> </ul>
<b>Installation Distance</b>	Maximum distance between SLC-220 and ID-220 Sensors: Up to 1,200 m (4,000 ft.), subject to hazardous area restrictions and use of Zener Safety Barriers. There is a place for Safety Barriers installation in all enclosure types.
<b>Cellular Modem</b>	Optional. Quad band cellular modem and omnidirectional antenna to enable wireless remote reporting and setting to / from up to six cellular phones. The user supplies a SIM card for each modem.
<b>PTP Radio Modem</b>	Optional. TBA.
<b>SLR-220 Receiver</b>	A special version of SLC-220 for interfacing multiple wired and wireless SLC-220 Controllers to end-user control system. TBA.

